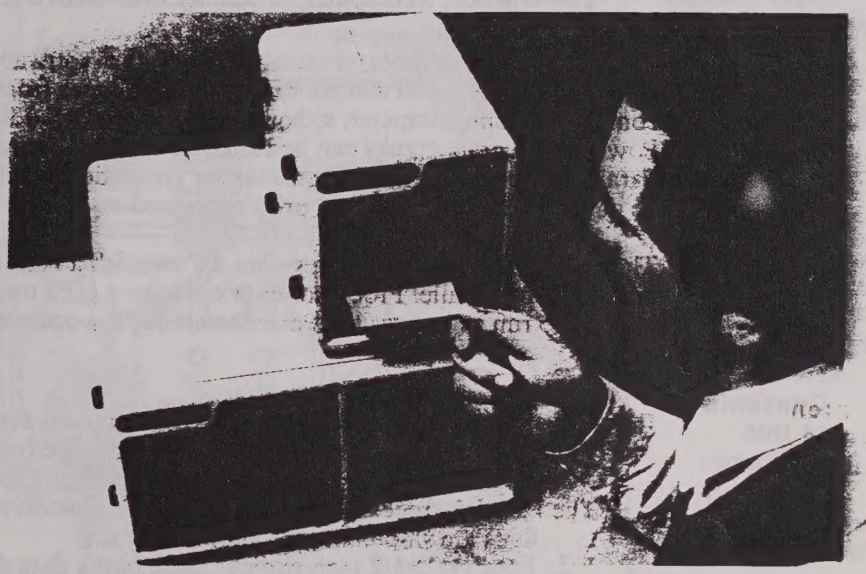


Model A-600 Parallel Processor

The A-600 Parallel Processor works with the BMI PowerScope to store disturbance graphs on floppy disk, retrieve and print graphs, or send them by modem to another location. The Parallel Processor provides harmonic distortion analysis, up to the 33rd harmonic at 60 Hz.

BMI Basic Measuring Instruments

The A-600 Parallel Processor

The A-600 Parallel Processor works with BMI's PowerScope. It stores text reports and disturbance graphs on 3-1/2 inch floppy disks, and provides harmonic analysis of voltage and current (up to the 33rd harmonic at 60 Hz). Graphs and reports can be retrieved from the disk and printed on the PowerScope, a computer, or sent by modem to a remote location.

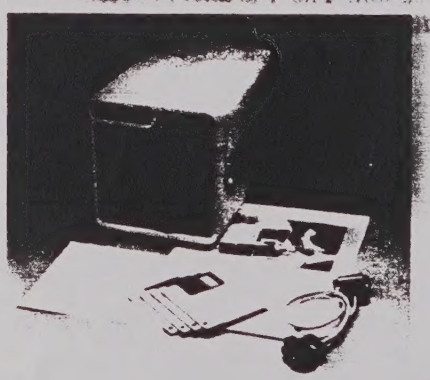
The Parallel Processor comes with PowerTalk® software. PowerTalk software lets you control one or more PowerScopes from an IBM-PC AT or compatible computer, either through a modem or RS-232 connector. PowerScope graphs can be stored in disk on your computer or on the A-600 Parallel Processor. Graphs can be viewed in side-by-side windows, and can be cut and pasted into a word processed report.

The Parallel Processor requires a PowerScope that has Rev. D 0.1 firmware or later. The Parallel Processor contains a UPS using NiCad batteries that allow it to run as long as the PowerScope is operating.

Contents of this Package

Before you begin, check that you have received everything you were supposed to. The Parallel Processor package includes the following:

1. The Parallel Processor unit with two disk drives. The yellow inserts in the drives are shipment head protectors.
2. Four (4) 3-1/2 inch floppy disks, blank data disks, BMI P/N S-601.
3. The PowerTalk software package. Contents are described in separate brochure.
4. The Parallel Processor Instruction Manual - this brochure.
5. One connector cable to the PowerScope expansion socket (15 pin).
6. One power cord jumper cable, and one power cord.
7. One warranty card, and one warranty registration card.



Contents of the Parallel Processor kit.

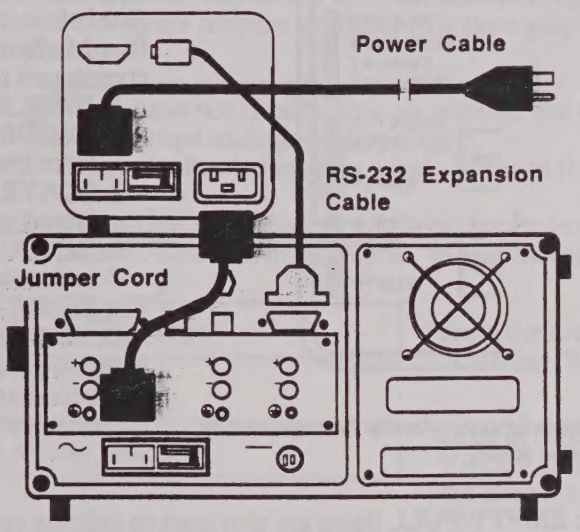
Contents of the PowerTalk software kit.

Insert the yellow head protectors into the disk drives whenever you ship or transport the Parallel Processor.

This brochure contains instructions for installing and operating the Parallel Processor. Instructions for operating PowerTalk software are contained in a separate publication, the PowerTalk Software User's Guide.

Connecting the Parallel Processor

To connect the Parallel Processor to the PowerScope, refer to the wiring diagram below.



Wiring connections for the A-600 Parallel Processor.

1. Connect the extension cable from the EXPANSION socket on the rear of the PowerScope to the rear panel of the Parallel Processor.

2. Connect a power cord from an outlet to the Parallel Processor, then use the jumper cable to supply power to the PowerScope.

3. Insert an initialized disk into each drive of the Parallel Processor. You can initialize an unformatted disk on any IBM-PC computer or compatible, or you can use the Parallel Processor (see page 4).
4. Set up the PowerScope in the normal fashion. Questions relating to the Parallel Processor will be added to the Key Operator Menu.

The Main Setup Menu

After connections are completed from the Parallel Processor to the PowerScope, you can relay instructions to the Parallel Processor using the keypad on the PowerScope. The Setup Menu for the Parallel Processor is located on the Key Operator Menu.

To access the Parallel Processor menu press the SETUP MENU button on the PowerScope, followed quickly by the Up arrow."Setup Menu ..." followed by the words "Menu: Key Operator" will appear in the display window.

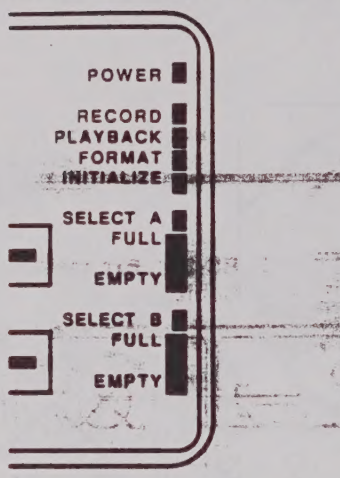
Menu: Key Operator
Menu: Communications
Menu: Storage

Press the VALUE DOWN arrow once to display "Menu: Communications", and again to display "Menu: Storage."

The "Menu: Storage" display marks the beginning of the Setup Menu for the Parallel Processor.

Pressing the Down arrow takes you further into the menus for the Parallel Processor. Either "Mode: Idle" or "Mode: Record" is displayed next, depending on how the Processor was left last. Continue on the next page.

Parallel Processor Indicator Lights



Indicator lights for Parallel Processor Mode and disk status.

Once in the Storage menu, you will notice the indicator lights on Parallel Processor are on. The POWER light indicates whether the unit is on or off. Just below the POWER light are the four Mode indicator lights which correspond to menu options. These are:

1. IDLE, for when not in use,
2. RECORD, for recording output from the PowerScope,
3. PLAYBACK, for retrieving stored graphs and reports, and
4. INITIALIZE, to initialize unformatted disks.

The SELECT A and SELECT B lights indicate which disk drive is currently being used, and the EMPTY, FULL lights indicate how much memory remains available on each floppy disk.

The EMPTY/FULL lights are also used to indicate special conditions for each disk.

1. When all EMPTY/FULL lights are off, there is no disk in that drive.
2. When all the EMPTY/FULL lights are on, and the top red light is lit continously, then the disk is full. If both disks are full, you must replace them. If only one disk is full, storage will continue to the other disk.
3. When only the red LED is blinking, and the EMPTY/FULL lights are off, then the disk is not formatted. You must initialize it (see below).
4. When the top red EMPTY/FULL light is blinking, and some of the green lights are on, the the disk is write protected. You may move the tab on the disk to cancel write protection.

Initializing a Disk

Disks may be initialized using the PowerScope and the Parallel Processor, or using any IBM-PC computer or compatible. To use the PowerScope for initializing a disk, follow the procedure on page 3 to access the Key Operator Menu, and move to Menu: Storage option. Place an unformatted disk in the top, A drive.

Menu: Storage

Press the Down arrow. This will move you to either Mode: Idle or Mode: Record, depending on how the unit was left last. Press the VALUE DOWN arrow 2 or 3 times to reach Mode: Initialize.

Mode: Initialize

Initialize: Drive A

Use the VALUE UP/VALUE DOWN keys to select Initialize: Drive A. Options are Quit, Drive A and Drive B. Press the Down arrow to initialize the disk.

Record Mode

The Record mode is used to receive information from the PowerScope and store it to disk. The Idle mode turns the Parallel Processor off. If you start with both disks empty, the Parallel Processor can store just over 1400 graphs and text reports. The EMPTY/FULL indicator lights will tell you roughly how much disk space remains available. To store graphs to disk proceed as follows:

1. If you have not already done so, connect the the Parallel Processor to the PowerScope as described on page 3.
2. Set up the PowerScope as usual. Refer to the PowerScope User's Guide.
3. Call up the Key Operator Menu on the PowerScope, as described on page 3. This will bring you to "Menu: Storage."

Menu: Storage	Press the Down arrow once or twice to display "Mode: Record."
Mode: Record	Once in Mode: Record the VALUE UP/ VALUE DOWN keys will let you select the printer setting. Options are On or Off.
Printer: On	The On setting lets the PowerScope print graphs as well as storing them to disk.

Idle Mode

To set the Parallel Processor to Idle, call up Menu: Storage on the Key Operator menu as described on page 3.

Menu: Storage	Press the Down arrow. Either "Mode: Record" or "Mode: Idle" will be displayed on the PowerScope, depending on how the Parallel Processor was left. If "Mode: Record" appears, simply press the VALUE UP key to switch to Idle mode.
Mode: Record	
Mode: Idle	Next, press the Down arrow to end this menu, and the Parallel Processor is in idle.

The Playback Menu

The Playback Menu enables you to retreive and print all or selected recorded disturbances. This menu also lets you print a report on disk status, that is, how full each disk is, the files that are on the disk, and whether it is write protected.

The Playback Menu, like all other menus with the Parallel Processor, is entered through the Key Operator Menu. Press the SETUP MENU key followed quickly by the Up arrow. Press the VALUE DOWN key once to get the Communications Menu and again to reach the Storage Menu.

Menu: Storage

Mode: Record

Press the Down arrow. You will enter either Mode: Idle or Mode: Record, depending on how the unit was left. Press the VALUE DOWN key once or twice to enter the Mode: Playback Menu.

Mode: Playback

Playback: Quit

Once in Mode: Playback, press the Down arrow. Next, use the VALUE UP/VALUE DOWN keys to select menu options. These are: Quit, File List, All and individual file names. The Playback: Quit option returns you to Mode: Record.

Playback: File List

Use the VALUE UP/VALUE DOWN keys to step through the Playback menu options.

For a printed copy of files on a disk, and disk status (i.e. percent full, copy protected or not) select the Playback: File List option, then press the Down arrow.

Playback: All

Playback: 14Feb88

Playback: All will print all disturbance reports on both disks. Select Playback All then the Down arrow.

Press the VALUE DOWN key to select individual files, and again press the Down arrow to print selected files.

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INTRATECH GENERATOR          Nov 09 1987

File List Of Drive A:

  Filename     No. of Graphs (approx)
------------   -------------
17SEP87  DIS           3
18SEP87  DIS           3
14SEP87  DIS          12
03FEB88  DIS           0
  Room for 645 more graphs (9% full).
  Disk is write protected.

Uninitialized disk in drive B.

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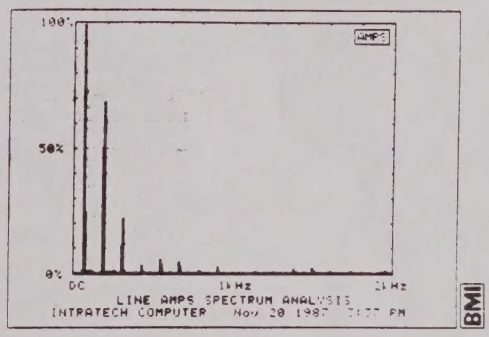
A disk status report is obtained by selecting Playback: File List, then pressing the Down arrow.

Harmonic Analysis

The Parallel Processor enables the PowerScope to print harmonic analysis and total harmonic distortion (THD). The signal is measured on channel 1, and analyzes harmonics up to 2000 Hz. This means at 60Hz you will include up to the 33rd harmonic in analysis.

There are no menu choices for harmonic distortion. To initiate THD analysis simply press the STATUS key, quickly followed by the Up arrow. An example of the printout is shown below.

HARM	PCT	PHASE	HARM	PCT	PHASE
FUND	100.0%	0°	2nd	0.8%	38°
3rd	68.8%	217°	4th	1.4%	206°
5th	21.4%	76°	6th	0.4%	-9°
7th	0.2%	117°	8th	0.2%	119°
9th	0.2%	285°	10th	0.1%	-20°
11th	0.1%	-155°	12th	0.1%	-122°
13th	0.2%	-24°	14th	2.0%	111°
15th	0.2%	97°	16th	0.2%	98°
17th	0.2%	-24°	18th	0.3%	42°
19th	0.2%	-128°	20th	1.0%	-6°
21st	0.1%	97°	22nd	1.9%	-175°
23rd	0.4%	-55°	24th	2.6%	-107°
25th	0.4%	178°	26th	0.2%	48°
27th	0.2%	155°	28th	0.3%	184°
29th	0.5%	182°	30th	0.2%	202°
31st	1.2%	-69°			
ODD	72.1%		EVEN	4.4%	
THD:	72.2%				



Typical graph showing total harmonic distortion analysis to the 33rd harmonic. Press the STATUS key quickly followed by the Up arrow to print THD.

The THD Scale Card

A typical harmonic distortion graph shows 33 harmonic values in approximately 3-1/2 inches. Enclosed with this manual is an aid to help you identify the harmonic and frequency for lines shown on harmonics graphs. The THD Scale Card, as it is called, contains four scales.

The scales are 1) 0 to 2000Hz at 60Hz, 2) 0 to 1000Hz at 60Hz, 3) 0 to 2000 Hz at 50Hz, and 4) 0 to 1000Hz at 50Hz, with all scales referring to the 4800 PowerScope.

When there are measurable harmonics beyond 1000Hz, then the Parallel Processor auto-ranges to the 2kHz scale.

Specifications

The A-600 Parallel Processor contains 2 floppy disk drives at 720k of memory each. The A-600 Parallel Processor requires Rev. D 0.1 or later firmware. BMI's PowerTalk software is included with the Parallel Processor. PowerTalk software is discussed in a separate brochure.

Summary of Parallel Processor Menus

- Menu: Key Operator
- Menu: Communication
- Menu: Storage
  - Mode: Idle
  - Mode: Record
    - Printer: On
    - Printer: Off
  - Mode: Playback
    - Playback: Quit
    - Playback: File List
    - Playback: All
    - Playback: 11Feb88 (i.e. filenames)
  - Mode: Initialize
    - Initialize: Quit
    - Initialize: Drive A
    - Initialize: Drive B

Capacity: Approximately 720 graphs per disk.

Power requirements: 30 watts maximum.

Power configurations:
- 120VAC (90-140Vrms), 45-450Hz
- 240VAC (180-280Vrms), 45-450Hz
- 12VDC (7-16Vdc)

Dimensions:
- Height: 7.4 inches (19cm).
- Width: 7 inches (18cm).
- Length: 10.3 inches (26cm).

Weight: 12 lbs. (5.4kg).

Accessories:
- A-013 Accessory rack mount
- G-013 Carry bag
- S-601 Blank diskettes, 10 per box
- S-603 Parallel Processor starter kit (Carry bag and 10 diskettes)

BMI

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